

SEQUENCE LISTING

<110> Steward, Lance E.
Fernandez-Salas, Ester
Aoki, Kei Roger

<120> Fret Protease Assays For Botulinum
Serotype A/E Toxins

<130> P-AR 4803

<160> 96

<170> FastSEQ for Windows Version 4.0

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<212> PRT

<213> Artificial Sequence

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<223> synthetic construct

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1 5

<210> 2

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<213> Homo sapiens

<400> 2

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		20						25					30		
Leu	Gln	Leu	Val	Glu	Glu	Ser	Lys	Asp	Ala	Gly	Ile	Arg	Thr	Leu	Val
		35					40					45			
Met	Leu	Asp	Glu	Gln	Gly	Glu	Gln	Leu	Glu	Arg	Ile	Glu	Glu	Gly	Met
		50				55					60				
Asp	Gln	Ile	Asn	Lys	Asp	Met	Lys	Glu	Ala	Glu	Lys	Asn	Leu	Thr	Asp
65				70					75					80	
Leu	Gly	Lys	Phe	Cys	Gly	Leu	Cys	Val	Cys	Pro	Cys	Asn	Lys	Leu	Lys
			85					90						95	
Ser	Ser	Asp	Ala	Tyr	Lys	Lys	Ala	Trp	Gly	Asn	Asn	Gln	Asp	Gly	Val
			100				105						110		
Val	Ala	Ser	Gln	Pro	Ala	Arg	Val	Val	Asp	Glu	Arg	Glu	Gln	Met	Ala
		115					120						125		

Ile Ser Gly Gly Phe Ile Arg Arg Val Thr Asn Asp Ala Arg Glu Asn
130 135 140
Glu Met Asp Glu Asn Leu Glu Gln Val Ser Gly Ile Ile Gly Asn Leu
145 150 155 160
Arg His Met Ala Leu Asp Met Gly Asn Glu Ile Asp Thr Gln Asn Arg
165 170 175
Gln Ile Asp Arg Ile Met Glu Lys Ala Asp Ser Asn Lys Thr Arg Ile
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Asp Glu Ala Asn Gln Arg Ala Thr Lys Met Leu Gly Ser Gly
195 200 205

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Gly Ala Ser Gln Phe Glu Thr Ser
1 5

<210> 4
<211> 116
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<213> Homo sapiens

<400> 4
Met Ser Ala Thr Ala Ala Thr Ala Pro Pro Ala Ala Pro Ala Gly Glu
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20 25 30
Gln Gln Thr Gln Ala Gln Val Asp Glu Val Val Asp Ile Met Arg Val
35 40 45
Asn Val Asp Lys Val Leu Glu Arg Asp Gln Lys Leu Ser Glu Leu Asp
50 55 60
Asp Arg Ala Asp Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu Thr Ser
65 70 75 80
Ala Ala Lys Leu Lys Arg Lys Tyr Trp Trp Lys Asn Leu Lys Met Met
85 90 95
Ile Ile Leu Gly Val Ile Cys Ala Ile Ile Leu Ile Ile Ile Ile Val
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Tyr Phe Ser Ser
115

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Asp Thr Lys Lys Ala Val Lys Trp
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<400> 6
Arg Asp Gln Lys Leu Ser Glu Leu
1 5

<210> 7
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<213> Rattus sp.

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Arg Ala Asp Gln Leu Ala Asp Glu Ser Leu Glu Ser Thr Arg Arg Met
20 25 30
Leu Gln Leu Val Glu Glu Ser Lys Asp Ala Gly Ile Arg Thr Leu Val
35 40 45
Met Leu Asp Glu Gln Gly Glu Gln Leu Glu Arg Ile Glu Glu Gly Met
50 55 60
Asp Gln Ile Asn Lys Asp Met Lys Glu Ala Glu Lys Asn Leu Thr Asp
65 70 75 80
Leu Gly Lys Phe Cys Gly Leu Cys Val Cys Pro Cys Asn Lys Leu Lys
85 90 95
Ser Ser Asp Ala Tyr Lys Lys Ala Trp Gly Asn Asn Gln Asp Gly Val
100 105 110
Val Ala Ser Gln Pro Ala Arg Val Val Asp Glu Arg Glu Gln Met Ala
115 120 125
Ile Ser Gly Gly Phe Ile Arg Arg Val Thr Asn Asp Ala Arg Glu Asn
130 135 140
Glu Met Asp Glu Asn Leu Glu Gln Val Ser Gly Ile Ile Gly Asn Leu

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T03230 43024650

145		150		155		160									
Arg	His	Met	Ala	Leu	Asp	Met	Gly	Asn	Glu	Ile	Asp	Thr	Gln	Asn	Arg
			165				170							175	
Gln	Ile	Asp	Arg	Ile	Met	Glu	Lys	Ala	Asp	Ser	Asn	Lys	Thr	Arg	Ile
			180				185							190	
Asp	Glu	Ala	Asn	Gln	Arg	Ala	Thr	Lys	Met	Leu	Gly	Ser	Gly		
		195					200						205		

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Gln Ile Asp Arg Ile Met Glu Lys
1 5

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1 5

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Glu Thr Ser Ala Ala Lys Leu Lys
1 5

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<210> 13
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<212> PRT
<213> Drosophila sp.
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<400> 13

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Glu	Leu	Glu	Glu	Leu	Gln	Ile	Asn	Ala	Gln	Gly	Val	Ala	Asp	Glu	Ser
			20					25					30		
Leu	Glu	Ser	Thr	Arg	Arg	Met	Leu	Ala	Leu	Cys	Glu	Glu	Ser	Lys	Glu
		35				40						45			
Ala	Gly	Ile	Arg	Thr	Leu	Val	Ala	Leu	Asp	Asp	Gln	Gly	Glu	Gln	Leu
	50					55					60				
Asp	Arg	Ile	Glu	Glu	Gly	Met	Asp	Gln	Ile	Asn	Ala	Asp	Met	Arg	Glu
65					70				75					80	
Ala	Glu	Lys	Asn	Leu	Ser	Gly	Met	Glu	Lys	Cys	Cys	Gly	Ile	Cys	Val
			85					90					95		
Leu	Pro	Cys	Asn	Lys	Ser	Gln	Ser	Phe	Lys	Glu	Asp	Asp	Gly	Thr	Trp
		100						105					110		
Lys	Gly	Asn	Asp	Asp	Gly	Lys	Val	Val	Asn	Asn	Gln	Pro	Gln	Arg	Val
	115					120						125			
Met	Asp	Asp	Arg	Asn	Gly	Met	Met	Ala	Gln	Ala	Gly	Tyr	Ile	Gly	Arg
	130					135					140				
Ile	Thr	Asn	Asp	Ala	Arg	Glu	Asp	Glu	Met	Glu	Glu	Asn	Met	Gly	Gln
145					150					155					160
Val	Asn	Thr	Met	Ile	Gly	Asn	Leu	Arg	Asn	Met	Ala	Leu	Asp	Met	Gly
			165					170					175		
Ser	Glu	Leu	Glu	Asn	Gln	Asn	Arg	Gln	Ile	Asp	Arg	Ile	Asn	Arg	Lys
		180						185				190			
Gly	Glu	Ser	Asn	Glu	Ala	Arg	Ile	Ala	Val	Ala	Asn	Gln	Arg	Ala	His
	195					200						205			
Gln	Leu	Leu	Lys												
	210														

<210> 14

<211> 203

<212> PRT

<213> Carassius auratus

<400> 14

Met	Ala	Asp	Glu	Ala	Asp	Met	Arg	Asn	Glu	Leu	Thr	Asp	Met	Gln	Ala
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Arg	Ala	Asp	Gln	Leu	Gly	Asp	Glu	Ser	Leu	Glu	Ser	Thr	Arg	Arg	Met
			20					25					30		
Leu	Gln	Leu	Val	Glu	Glu	Ser	Lys	Asp	Ala	Gly	Ile	Arg	Thr	Leu	Val
		35				40						45			
Met	Leu	Asp	Glu	Gln	Gly	Glu	Gln	Leu	Glu	Arg	Ile	Glu	Glu	Gly	Met
	50				55						60				
Asp	Gln	Ile	Asn	Lys	Asp	Met	Lys	Glu	Ala	Glu	Lys	Asn	Leu	Thr	Asp
65				70					75					80	
Leu	Gly	Asn	Leu	Cys	Gly	Leu	Cys	Pro	Cys	Pro	Cys	Asn	Lys	Leu	Lys
			85					90					95		
Gly	Gly	Gly	Gln	Ser	Trp	Gly	Asn	Asn	Gln	Asp	Gly	Val	Val	Ser	Ser
		100					105					110			
Gln	Pro	Ala	Arg	Val	Val	Asp	Glu	Arg	Glu	Gln	Met	Ala	Ile	Ser	Gly
	115					120						125			

protein data bank

Gly	Phe	Ile	Arg	Arg	Val	Thr	Asn	Asp	Ala	Arg	Glu	Asn	Glu	Met	Asp
130						135					140				
Glu	Asn	Leu	Glu	Gln	Val	Gly	Ser	Ile	Ile	Gly	Asn	Leu	Arg	His	Met
145					150					155					160
Ala	Leu	Asp	Met	Gly	Asn	Glu	Ile	Asp	Thr	Gln	Asn	Arg	Gln	Ile	Asp
				165					170					175	
Arg	Ile	Met	Asp	Met	Ala	Asp	Ser	Asn	Lys	Thr	Arg	Ile	Asp	Glu	Ala
			180					185					190		
Asn	Gln	Arg	Ala	Thr	Lys	Met	Leu	Gly	Ser	Gly					
	195						200								

<210> 15

<211> 212

<212> PRT

<213> Strongylocentrotus purpuratus

<400> 15

Met	Glu	Asp	Gln	Asn	Asp	Met	Asn	Met	Arg	Ser	Glu	Leu	Glu	Glu	Ile
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Gln	Met	Gln	Ser	Asn	Met	Gln	Thr	Asp	Glu	Ser	Leu	Glu	Ser	Thr	Arg
			20					25					30		
Arg	Met	Leu	Gln	Met	Ala	Glu	Glu	Ser	Gln	Asp	Met	Gly	Ile	Lys	Thr
		35					40					45			
Leu	Val	Met	Leu	Asp	Glu	Gln	Gly	Glu	Gln	Leu	Asp	Arg	Ile	Glu	Glu
	50					55					60				
Gly	Met	Asp	Gln	Ile	Asn	Thr	Asp	Met	Arg	Glu	Ala	Glu	Lys	Asn	Leu
65					70				75						80
Thr	Gly	Leu	Glu	Lys	Cys	Cys	Gly	Ile	Cys	Val	Cys	Pro	Trp	Lys	Lys
				85					90					95	
Leu	Gly	Asn	Phe	Glu	Lys	Gly	Asp	Asp	Tyr	Lys	Lys	Thr	Trp	Lys	Gly
		100						105					110		
Asn	Asp	Asp	Gly	Lys	Val	Asn	Ser	His	Gln	Pro	Met	Arg	Met	Glu	Asp
		115						120				125			
Asp	Arg	Asp	Gly	Cys	Gly	Gly	Asn	Ala	Ser	Met	Ile	Thr	Arg	Ile	Thr
		130				135					140				
Asn	Asp	Ala	Arg	Glu	Asp	Glu	Met	Asp	Glu	Asn	Leu	Thr	Gln	Val	Ser
145				150						155					160
Ser	Ile	Val	Gly	Asn	Leu	Arg	His	Met	Ala	Ile	Asp	Met	Gln	Ser	Glu
			165						170					175	
Ile	Gly	Ala	Gln	Asn	Ser	Gln	Val	Gly	Arg	Ile	Thr	Ser	Lys	Ala	Glu
		180						185					190		
Ser	Asn	Glu	Gly	Arg	Ile	Asn	Ser	Ala	Asp	Lys	Arg	Ala	Lys	Asn	Ile
	195						200					205			
Leu	Arg	Asn	Lys												
	210														

<210> 16

<211> 249

<212> PRT

<213> Gallus gallus

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<400> 16

Met	Ala	Glu	Asp	Ala	Asp	Met	Arg	Asn	Glu	Leu	Glu	Glu	Met	Gln	Arg
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Arg	Ala	Asp	Gln	Leu	Ala	Asp	Glu	Ser	Leu	Glu	Ser	Thr	Arg	Arg	Met
			20					25					30		
Leu	Gln	Leu	Val	Glu	Glu	Ser	Lys	Asp	Ala	Gly	Ile	Arg	Thr	Leu	Val
		35					40					45			
Met	Leu	Asp	Glu	Gln	Gly	Glu	Gln	Leu	Asp	Arg	Val	Glu	Glu	Gly	Met
		50				55					60				
Asn	His	Ile	Asn	Gln	Asp	Met	Lys	Glu	Ala	Glu	Lys	Asn	Leu	Lys	Asp
65					70					75					80
Leu	Gly	Lys	Cys	Cys	Gly	Leu	Phe	Ile	Cys	Pro	Cys	Asn	Lys	Leu	Lys
			85						90					95	
Ser	Ser	Asp	Ala	Tyr	Lys	Lys	Ala	Trp	Gly	Asn	Asn	Gln	Asp	Gly	Val
			100					105					110		
Val	Ala	Ser	Gln	Pro	Ala	Arg	Val	Val	Asp	Glu	Arg	Glu	Gln	Met	Ala
		115					120					125			
Ile	Ser	Gly	Gly	Phe	Ile	Arg	Arg	Val	Thr	Asn	Asp	Ala	Arg	Glu	Asn
		130				135					140				
Glu	Met	Asp	Glu	Asn	Leu	Glu	Gln	Val	Ser	Gly	Ile	Ile	Gly	Asn	Leu
145					150					155					160
Arg	His	Met	Ala	Leu	Asp	Met	Gly	Asn	Glu	Ile	Asp	Thr	Gln	Asn	Arg
				165					170					175	
Gln	Ile	Asp	Arg	Ile	Met	Glu	Lys	Leu	Ile	Pro	Ile	Lys	Pro	Gly	Leu
			180					185					190		
Met	Lys	Pro	Thr	Ser	Val	Gln	Gln	Arg	Cys	Ser	Ala	Val	Val	Lys	Cys
		195					200					205			
Ser	Lys	Val	His	Phe	Leu	Leu	Met	Leu	Ser	Gln	Arg	Ala	Val	Pro	Ser
		210				215					220				
Cys	Phe	Tyr	His	Gly	Ile	Tyr	Leu	Leu	Gly	Leu	His	Thr	Cys	Thr	Tyr
225					230					235					240
Gln	Pro	His	Cys	Lys	Cys	Cys	Pro	Val							
				245											

<210> 17

<211> 116

<212> PRT

<213> Mus musculus

<400> 17

Met	Ser	Ala	Thr	Ala	Ala	Thr	Val	Pro	Pro	Ala	Ala	Pro	Ala	Gly	Glu
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Gly	Gly	Pro	Pro	Ala	Pro	Pro	Pro	Asn	Leu	Thr	Ser	Asn	Arg	Arg	Leu
			20					25					30		
Gln	Gln	Thr	Gln	Ala	Gln	Val	Asp	Glu	Val	Val	Asp	Ile	Met	Arg	Val
		35					40					45			
Asn	Val	Asp	Lys	Val	Leu	Glu	Arg	Asp	Gln	Lys	Leu	Ser	Glu	Leu	Asp
		50				55					60				
Asp	Arg	Ala	Asp	Ala	Leu	Gln	Ala	Gly	Ala	Ser	Gln	Phe	Glu	Thr	Ser
65					70					75					80
Ala	Ala	Lys	Leu	Lys	Arg	Lys	Tyr	Trp	Trp	Lys	Asn	Leu	Lys	Met	Met
				85					90					95	

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Ile Ile Leu Gly Val Ile Cys Ala Ile Ile Leu Ile Ile Ile Ile Val
100 105 110
Tyr Phe Ser Thr
115

<210> 18
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<213> Bos taurus

<400> 18
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Gly Gly Pro Pro Ala Pro Pro Pro Asn Leu Thr Ser Asn Arg Arg Leu
20 25 30
Gln Gln Thr Gln Ala Gln Val Asp Glu Val Val Asp Ile Met Arg Val
35 40 45
Asn Val Asp Lys Val Leu Glu Arg Asp Gln Lys Leu Ser Glu Leu Asp
50 55 60
Asp Arg Ala Asp Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu Thr Ser
65 70 75 80
Ala Ala Lys Leu Lys Arg Lys Tyr Trp Trp Lys Asn Leu Lys Met Met
85 90 95
Ile Ile Leu Gly Val Ile Cys Ala Ile Ile Leu Ile Ile Ile Ile Val
100 105 110
Tyr Phe Ser Ser
115

<210> 19
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<213> Xenopus laevis

<400> 19
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Ala Pro Gln Gly Pro Pro Asn Leu Thr Ser Asn Arg Arg Leu Gln Gln
20 25 30
Thr Gln Ala Gln Val Asp Glu Val Val Asp Ile Met Arg Val Asn Val
35 40 45
Asp Lys Val Leu Glu Arg Asp Thr Lys Leu Ser Glu Leu Asp Asp Arg
50 55 60
Ala Asp Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu Thr Ser Ala Ala
65 70 75 80
Lys Leu Lys Arg Lys Tyr Trp Trp Lys Asn Met Lys Met Met Ile Ile
85 90 95
Met Gly Val Ile Cys Ala Ile Ile Leu Ile Ile Ile Ile Val Tyr Phe
100 105 110
Ser Thr

Trp230-434-650

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<400> 20
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Gln Gln Thr Gln Ala Gln Val Asp Glu Val Val Asp Ile Met Arg Val
              20              25              30
Asn Val Asp Lys Val Leu Glu Arg Asp Gln Ala Leu Ser Val Leu Asp
              35              40              45
Asp Arg Ala Asp Ala Leu Gln Gln Gly Ala Ser Gln Phe Glu Thr Asn
              50              55              60
Ala Gly Lys Leu Lys Arg Lys Tyr Trp Trp Lys Asn Cys Lys Met Met
65              70              75              80
Ile Ile Leu Ala Ile Ile Ile Ile Val Ile Leu Ile Ile Ile Ile Val
              85              90              95
Ala Ile Val Gln Ser Gln Lys Lys
              100

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<400> 21															
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Asp	Asp	Asp	Val	Ala	Val	Thr	Val	Asp	Arg	Asp	Arg	Phe	Met	Asp	Glu
			20					25					30		
Phe	Phe	Glu	Gln	Val	Glu	Glu	Ile	Arg	Gly	Phe	Ile	Asp	Lys	Ile	Ala
		35					40					45			
Glu	Asn	Val	Glu	Glu	Val	Lys	Arg	Lys	His	Ser	Ala	Ile	Leu	Ala	Ser
	50					55				60					
Pro	Asn	Pro	Asp	Glu	Lys	Thr	Lys	Glu	Glu	Leu	Glu	Glu	Leu	Met	Ser
65					70					75				80	
Asp	Ile	Lys	Lys	Thr	Ala	Asn	Lys	Val	Arg	Ser	Lys	Leu	Lys	Ser	Ile
				85					90					95	
Glu	Gln	Ser	Ile	Glu	Gln	Glu	Glu	Gly	Leu	Asn	Arg	Ser	Ser	Ala	Asp
			100					105					110		
Leu	Arg	Ile	Arg	Lys	Thr	Gln	His	Ser	Thr	Leu	Ser	Arg	Lys	Phe	Val
	115					120						125			
Glu	Val	Met	Ser	Glu	Tyr	Asn	Ala	Thr	Gln	Ser	Asp	Tyr	Arg	Glu	Arg
	130					135					140				
Cys	Lys	Gly	Arg	Ile	Gln	Arg	Gln	Leu	Glu	Ile	Thr	Gly	Arg	Thr	Thr
145				150						155				160	
Thr	Ser	Glu	Glu	Leu	Glu	Asp	Met	Leu	Glu	Ser	Gly	Asn	Pro	Ala	Ile
				165					170				175		
Phe	Ala	Ser	Gly	Ile	Ile	Met	Asp	Ser	Ser	Ile	Ser	Lys	Gln	Ala	Leu
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<210> 22
<211> 288
<212> PRT
<213> Homo sapiens
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<400> 22															
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Phe	Glu	Gln 35	Val	Glu	Glu	Ile 40	Arg	Gly 45	Cys	Ile	Glu	Lys 45	Leu	Ser	Glu
Asp	Val 50	Glu	Gln	Val	Lys 55	Lys	Gln	His	Ser 60	Ala	Ile	Leu	Ala	Ala	Pro
Asn 65	Pro	Asp	Glu	Lys 70	Thr	Lys	Gln	Glu	Leu 75	Glu	Asp	Leu	Thr	Ala	Asp
Ile	Lys	Lys	Thr 85	Ala	Asn	Lys	Val	Arg 90	Ser	Lys	Leu	Lys	Ala	Ile	Glu
Gln	Ser	Ile 100	Glu	Gln	Glu	Glu	Gly	Leu 105	Asn	Arg	Ser	Ser	Ala	Asp	Leu
Arg	Ile 115	Arg	Lys	Thr	Gln	His	Ser 120	Thr	Leu	Ser	Arg	Lys 125	Phe	Val	Glu
Val	Met 130	Thr	Glu	Tyr	Asn 135	Ala	Thr	Gln	Ser	Lys	Tyr 140	Arg	Asp	Arg	Cys
Lys 145	Asp	Arg	Ile	Gln	Arg 150	Gln	Leu	Glu	Ile	Thr 155	Gly	Arg	Thr	Thr	Thr
Asn	Glu	Glu	Leu 165	Glu	Asp	Met	Leu	Glu	Ser 170	Gly	Lys	Leu	Ala	Ile	Phe
Thr	Asp	Asp	Ile 180	Lys	Met	Asp	Ser	Gln 185	Met	Thr	Lys	Gln	Ala	Leu	Asn
Glu	Ile 195	Glu	Thr	Arg	His	Asn	Glu	Ile 200	Ile	Lys	Leu	Glu	Thr	Ser	Ile
Arg	Glu 210	Leu	His	Asp	Met	Phe	Val	Asp 215	Met	Ala	Met	Leu	Val	Glu	Ser
Gln 225	Gly	Glu	Met	Ile	Asp 230	Arg	Ile	Glu	Tyr	Asn	Val	Glu	His	Ser	Val
Asp	Tyr	Val	Glu 245	Arg	Ala	Val	Ser	Asp 250	Thr	Lys	Lys	Ala	Val	Lys	Tyr
Gln	Ser	Lys	Ala	Arg	Arg	Lys	Lys	Ile	Met	Ile	Ile	Ile	Cys	Cys	Val

	260		265		270
Val	Leu	Gly	Val	Val	Leu
			Ala	Ser	Ser
	275		280	Ile	Gly
				Gly	Gly
				Thr	Leu
					Gly
					Leu

<210> 23
 <211> 288
 <212> PRT
 <213> Mus musculus

<400> 23

Met	Lys	Asp	Arg	Thr	Gln	Glu	Leu	Arg	Thr	Ala	Lys	Asp	Ser	Asp	Asp
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Asp	Asp	Asp	Val	Thr	Val	Thr	Val	Asp	Arg	Asp	Arg	Phe	Met	Asp	Glu
			20					25					30		
Phe	Phe	Glu	Gln	Val	Glu	Glu	Ile	Arg	Gly	Phe	Ile	Asp	Lys	Ile	Ala
		35					40					45			
Glu	Asn	Val	Glu	Glu	Val	Lys	Arg	Lys	His	Ser	Ala	Ile	Leu	Ala	Ser
	50					55					60				
Pro	Asn	Pro	Asp	Glu	Lys	Thr	Lys	Glu	Glu	Leu	Glu	Glu	Leu	Met	Ser
65					70					75				80	
Asp	Ile	Lys	Lys	Thr	Ala	Asn	Lys	Val	Arg	Ser	Lys	Leu	Lys	Ser	Ile
				85					90					95	
Glu	Gln	Ser	Ile	Glu	Gln	Glu	Glu	Gly	Leu	Asn	Arg	Ser	Ser	Ala	Asp
			100					105					110		
Leu	Arg	Ile	Arg	Lys	Thr	Gln	His	Ser	Thr	Leu	Ser	Arg	Lys	Phe	Val
	115					120						125			
Glu	Val	Met	Ser	Glu	Tyr	Asn	Ala	Thr	Gln	Ser	Asp	Tyr	Arg	Glu	Arg
	130					135					140				
Cys	Lys	Gly	Arg	Ile	Gln	Arg	Gln	Leu	Glu	Ile	Thr	Gly	Arg	Thr	Thr
145					150					155				160	
Thr	Ser	Glu	Glu	Leu	Glu	Asp	Met	Leu	Glu	Ser	Gly	Asn	Pro	Ala	Ile
				165					170					175	
Phe	Ala	Ser	Gly	Ile	Ile	Met	Asp	Ser	Ser	Ile	Ser	Lys	Gln	Ala	Leu
		180					185						190		
Ser	Glu	Ile	Glu	Thr	Arg	His	Ser	Glu	Ile	Ile	Lys	Leu	Glu	Thr	Ser
	195					200						205			
Ile	Arg	Glu	Leu	His	Asp	Met	Phe	Met	Asp	Met	Ala	Met	Leu	Val	Glu
	210					215					220				
Ser	Gln	Gly	Glu	Met	Ile	Asp	Arg	Ile	Glu	Tyr	Asn	Val	Glu	His	Ala
225					230					235					240
Val	Asp	Tyr	Val	Glu	Arg	Ala	Val	Ser	Asp	Thr	Lys	Lys	Ala	Val	Lys
				245					250					255	
Tyr	Gln	Ser	Lys	Ala	Arg	Arg	Lys	Lys	Ile	Met	Ile	Ile	Ile	Cys	Cys
		260					265						270		
Val	Ile	Leu	Gly	Ile	Ile	Ile	Ala	Ser	Thr	Ile	Gly	Gly	Ile	Phe	Gly
		275					280						285		

<210> 24
 <211> 291
 <212> PRT
 <213> Drosophila sp.

FOE230440450

<400> 24

```

Met Thr Lys Asp Arg Leu Ala Ala Leu His Ala Ala Gln Ser Asp Asp
 1           5           10           15
Glu Glu Glu Thr Glu Val Ala Val Asn Val Asp Gly His Asp Ser Tyr
      20           25           30
Met Asp Asp Phe Phe Ala Gln Val Glu Glu Ile Arg Gly Met Ile Asp
      35           40           45
Lys Val Gln Asp Asn Val Glu Glu Val Lys Lys Lys His Ser Ala Ile
      50           55           60
Leu Ser Ala Pro Gln Thr Asp Glu Lys Thr Lys Gln Glu Leu Glu Asp
      65           70           75           80
Leu Met Ala Asp Ile Lys Lys Asn Ala Asn Arg Val Arg Gly Lys Leu
      85           90           95
Lys Gly Ile Glu Gln Asn Ile Glu Gln Glu Glu Gln Gln Asn Lys Ser
      100           105           110
Ser Ala Asp Leu Arg Ile Arg Lys Thr Gln His Ser Thr Leu Ser Arg
      115           120           125
Lys Phe Val Glu Val Met Thr Glu Tyr Asn Arg Thr Gln Thr Asp Tyr
      130           135           140
Arg Glu Arg Cys Lys Gly Arg Ile Gln Arg Gln Leu Glu Ile Thr Gly
      145           150           155           160
Arg Pro Thr Asn Asp Asp Glu Leu Glu Lys Met Leu Glu Glu Gly Asn
      165           170           175
Ser Ser Val Phe Thr Gln Gly Ile Ile Met Glu Thr Gln Gln Ala Lys
      180           185           190
Gln Thr Leu Ala Asp Ile Glu Ala Arg His Gln Asp Ile Met Lys Leu
      195           200           205
Glu Thr Ser Ile Lys Glu Leu His Asp Met Phe Met Asp Met Ala Met
      210           215           220
Leu Val Glu Ser Gln Gly Glu Met Ile Asp Arg Ile Glu Tyr His Val
      225           230           235           240
Glu His Ala Met Asp Tyr Val Gln Thr Ala Thr Gln Asp Thr Lys Lys
      245           250           255
Ala Leu Lys Tyr Gln Ser Lys Ala Arg Arg Lys Lys Ile Met Ile Leu
      260           265           270
Ile Cys Leu Thr Val Leu Gly Ile Leu Ala Ala Ser Tyr Val Ser Ser
      275           280           285
Tyr Phe Met
      290

```

<210> 25

<211> 291

<212> PRT

<213> Caenorhabditis elegans

<400> 25

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Met Thr Lys Asp Arg Leu Ser Ala Leu Lys Ala Ala Gln Ser Glu Asp
 1           5           10           15
Glu Gln Asp Asp Asp Met His Met Asp Thr Gly Asn Ala Gln Tyr Met
      20           25           30
Glu Glu Phe Phe Glu Gln Val Glu Glu Ile Arg Gly Ser Val Asp Ile

```

103200"4204600

```
<210> 26
<211> 288
<212> PRT
<213> Strongylocentrotus purpuratus
```

Met	Arg	Asp	Arg	Leu	Gly	Ser	Leu	Lys	Arg	Asn	Glu	Glu	Asp	Asp	Val
1				5					10					15	
Gly	Pro	Glu	Val	Ala	Val	Asn	Val	Glu	Ser	Glu	Lys	Phe	Met	Glu	Glu
			20					25					30		
Phe	Phe	Glu	Gln	Val	Glu	Glu	Val	Arg	Asn	Asn	Ile	Asp	Lys	Ile	Ser
		35					40					45			
Lys	Asn	Val	Asp	Glu	Val	Lys	Lys	Lys	His	Ser	Asp	Ile	Leu	Ser	Ala
	50					55					60				
Pro	Gln	Ala	Asp	Glu	Lys	Val	Lys	Asp	Glu	Leu	Glu	Glu	Leu	Met	Ser
65					70					75					80
Asp	Ile	Lys	Lys	Thr	Ala	Asn	Lys	Val	Arg	Ala	Lys	Leu	Lys	Met	Met
				85					90					95	

Glu Gln Ser Ile Glu Gln Glu Glu Ser Ala Lys Met Asn Ser Ala Asp
100 105 110
Val Arg Ile Arg Lys Thr Gln His Ser Thr Leu Ser Arg Lys Phe Val
115 120 125
Glu Val Met Thr Asp Tyr Asn Ser Thr Gln Thr Asp Tyr Arg Glu Arg
130 135 140
Cys Lys Gly Arg Ile Gln Arg Gln Leu Glu Ile Thr Gly Lys Ser Thr
145 150 155 160
Thr Asp Ala Glu Leu Glu Asp Met Leu Glu Ser Gly Asn Pro Ala Ile
165 170 175
Phe Thr Ser Gly Ile Ile Met Asp Thr Gln Gln Ala Lys Gln Thr Leu
180 185 190
Arg Asp Ile Glu Ala Arg His Asn Asp Ile Ile Lys Leu Glu Ser Ser
195 200 205
Ile Arg Glu Leu His Asp Met Phe Met Asp Met Ala Met Leu Val Glu
210 215 220
Ser Gln Gly Glu Met Ile Asp Arg Ile Glu Tyr Asn Val Glu Gln Ser
225 230 235 240
Val Asp Tyr Val Glu Thr Ala Lys Met Asp Thr Lys Lys Ala Val Lys
245 250 255
Tyr Gln Ser Lys Ala Arg Arg Lys Lys Phe Tyr Ile Ala Ile Cys Cys
260 265 270
Gly Val Ala Leu Gly Ile Leu Val Leu Val Leu Ile Ile Val Leu Ala
275 280 285

<210> 27
<211> 13
<212> PRT
<213> Homo sapiens

<400> 27
Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys Met
1 5 10

<210> 28
<211> 15
<212> PRT
<213> Homo sapiens

<400> 28
Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys
1 5 10 15

<210> 29
<211> 16
<212> PRT
<213> Homo sapiens

<400> 29
Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys Met

003220-403220

```
<210> 30
<211> 17
<212> PRT
<213> Homo sapiens
```

```
<210> 31
<211> 17
<212> PRT
<213> Homo sapiens
```

```
<210> 32
<211> 18
<212> PRT
<213> Homo sapiens
```

```
<210> 33
<211> 33
<212> PRT
<213> Mus musculus
```

```

<400> 33
Gln Asn Arg Gln Ile Asp Arg Ile Met Glu Lys Ala Asp Ser Asn Lys
 1             5             10             15
Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys Met Leu Gly Ser
          20             25             30
Gly

```


<210> 34
<211> 32
<212> PRT
<213> Homo sapiens

<400> 34
Gln Asn Pro Gln Ile Lys Arg Ile Thr Asp Lys Ala Asp Thr Asn Arg
1 5 10 15
Asp Arg Ile Asp Ile Ala Asn Ala Arg Ala Lys Lys Leu Ile Asp Ser
20 25 30

<210> 35
<211> 32
<212> PRT
<213> Mus musculus

<400> 35
Gln Asn Gln Gln Ile Gln Lys Ile Thr Glu Lys Ala Asp Thr Asn Lys
1 5 10 15
Asn Arg Ile Asp Ile Ala Asn Thr Arg Ala Lys Lys Leu Ile Asp Ser
20 25 30

<210> 36
<211> 34
<212> PRT
<213> Gallus gallus

<400> 36
Gln Asn Arg Gln Ile Asp Arg Ile Met Glu Lys Leu Ile Pro Ile Lys
1 5 10 15
Pro Gly Leu Met Lys Pro Thr Ser Val Gln Gln Arg Cys Ser Ala Val
20 25 30
Val Lys

<210> 37
<211> 33
<212> PRT
<213> Carassius auratus

<400> 37
Gln Asn Arg Gln Ile Asp Arg Ile Met Asp Met Ala Asp Ser Asn Lys
1 5 10 15
Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys Met Leu Gly Ser
20 25 30
Gly

<210> 38

Truncated file

<211> 33
<212> PRT
<213> *Carassius auratus*

<400> 38
Gln Asn Arg Gln Ile Asp Arg Ile Met Glu Lys Ala Asp Ser Asn Lys
1 5 10 15
Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys Met Leu Gly Ser
20 25 30
Gly

<210> 39
<211> 30
<212> PRT
<213> *Torpedo sp.*

<400> 39
Gln Asn Ala Gln Val Asp Arg Ile Val Val Lys Gly Asp Met Asn Lys
1 5 10 15
Ala Arg Ile Asp Glu Ala Asn Lys His Ala Thr Lys Met Leu
20 25 30

<210> 40
<211> 33
<212> PRT
<213> *Strongylocentrotus purpuratus*

<400> 40
Gln Asn Ser Gln Val Gly Arg Ile Thr Ser Lys Ala Glu Ser Asn Glu
1 5 10 15
Gly Arg Ile Asn Ser Ala Asp Lys Arg Ala Lys Asn Ile Leu Arg Asn
20 25 30
Lys

<210> 41
<211> 31
<212> PRT
<213> *Caenorhabditis elegans*

<400> 41
Gln Asn Arg Gln Leu Asp Arg Ile His Asp Lys Gln Ser Asn Glu Val
1 5 10 15
Arg Val Glu Ser Ala Asn Lys Arg Ala Lys Asn Leu Ile Thr Lys
20 25 30

<210> 42
<211> 31

Truncated sequence

<212> PRT

<213> Drosophila sp.

<400> 42

Gln	Asn	Arg	Gln	Ile	Asp	Arg	Ile	Asn	Arg	Lys	Gly	Glu	Ser	Asn	Glu
1				5				10						15	
Ala	Arg	Ile	Ala	Val	Ala	Asn	Gln	Arg	Ala	His	Gln	Leu	Leu	Lys	
			20				25						30		

<210> 43

<211> 32

<212> PRT

<213> Hirudinida sp.

<400> 43

Gln	Asn	Arg	Gln	Val	Asp	Arg	Ile	Asn	Asn	Lys	Met	Thr	Ser	Asn	Gln
1				5				10						15	
Leu	Arg	Ile	Ser	Asp	Ala	Asn	Lys	Arg	Ala	Ser	Lys	Leu	Leu	Lys	Glu
			20				25						30		

<210> 44

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic peptide

<400> 44

Ser	Asn	Lys	Thr	Arg	Ile	Asp	Glu	Ala	Asn	Gln	Arg	Ala	Thr	Lys	Ala
1				5				10						15	
Leu															

<210> 45

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic peptide

<221> MOD_RES

<222> 16

<223> Xaa=Nle

<400> 45

Ser	Asn	Lys	Thr	Arg	Ile	Asp	Glu	Ala	Asn	Gln	Arg	Ala	Thr	Lys	Xaa
1				5				10						15	
Leu															

160420240305

<210> 46
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic peptide

<400> 46
Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Ala Met
1 5 10 15
Leu

<210> 47
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic peptide

<400> 47
Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Ser Lys Met
1 5 10 15
Leu

<210> 48
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic peptide

<221> MOD_RES
<222> 14
<223> Xaa=Abu

<400> 48
Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Xaa Lys Met
1 5 10 15
Leu

<210> 49

T08230-404650

<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic peptide

<221> MOD_RES
<222> 13
<223> Xaa=Abu

<400> 49
Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Xaa Thr Lys Met
1 5 10 15
Leu

<210> 50
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic peptide

<400> 50
Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Ala Arg Ala Thr Lys Met
1 5 10 15
Leu

<210> 51
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic peptide

<221> MOD_RES
<222> 11
<223> Xaa=Abu

<400> 51
Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Xaa Ala Thr Lys Met Leu
1 5 10 15

<210> 52
<211> 17
<212> PRT

TC3230-402450

<220>

<400> 52

<210> 53

<211> 17

<212> PRT

<220>

<400> 53

<210> 54

<211> 17

<212> PRT

<220>

<221> MOD RES

<222> 9

<223> Xaa=Abu

<400> 54

<210> 55

<211> 17

<212> PRT

<220>

<223> synthetic peptide

<400> 55

Ser Asn Lys Thr Arg Ile Asp Gln Ala Asn Gln Arg Ala Thr Lys Met
1 5 10 15
Leu

<210> 56

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic peptide

<400> 56

Ser Asn Lys Thr Arg Ile Asn Glu Ala Asn Gln Arg Ala Thr Lys Met
1 5 10 15
Leu

<210> 57

<211> 40

<212> PRT

<213> Homo sapiens

<400> 57

Asp Lys Val Leu Glu Arg Asp Gln Lys Leu Ser Glu Leu Asp Asp Arg
1 5 10 15
Ala Asp Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu Ser Ser Ala Ala
20 25 30
Lys Leu Lys Arg Lys Tyr Trp Trp
35 40

<210> 58

<211> 40

<212> PRT

<213> Bos taurus

<400> 58

Asp Lys Val Leu Glu Arg Asp Gln Lys Leu Ser Glu Leu Asp Asp Arg
1 5 10 15
Ala Asp Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu Thr Ser Ala Ala
20 25 30
Lys Leu Lys Arg Lys Tyr Trp Trp
35 40

<210> 59

<211> 40

T03300-42024550

<212> PRT

<213> Rattus sp.

<400> 59

Asp	Lys	Val	Leu	Glu	Arg	Asp	Gln	Lys	Leu	Ser	Glu	Leu	Asp	Asp	Arg
1				5					10					15	
Ala	Asp	Ala	Leu	Gln	Ala	Gly	Ala	Ser	Val	Phe	Glu	Ser	Ser	Ala	Ala
			20					25					30		
Lys	Leu	Lys	Arg	Lys	Tyr	Trp	Trp								
		35					40								

<210> 60

<211> 40

<212> PRT

<213> Rattus sp.

<400> 60

Asp	Lys	Val	Leu	Glu	Arg	Asp	Gln	Lys	Leu	Ser	Glu	Leu	Asp	Asp	Arg
1				5					10					15	
Ala	Asp	Ala	Leu	Gln	Ala	Gly	Ala	Ser	Gln	Phe	Glu	Thr	Ser	Ala	Ala
			20					25					30		
Lys	Leu	Lys	Arg	Lys	Tyr	Trp	Trp								
		35					40								

<210> 61

<211> 40

<212> PRT

<213> Rattus sp.

<400> 61

Asp	Lys	Val	Leu	Glu	Arg	Asp	Gln	Lys	Leu	Ser	Glu	Leu	Asp	Asp	Arg
1				5					10					15	
Ala	Asp	Ala	Leu	Gln	Ala	Gly	Ala	Ser	Gln	Phe	Glu	Thr	Ser	Ala	Ala
			20					25					30		
Lys	Leu	Lys	Arg	Lys	Tyr	Trp	Trp								
		35					40								

<210> 62

<211> 40

<212> PRT

<213> Rattus sp.

<400> 62

Asp	Leu	Val	Ala	Gln	Arg	Gly	Glu	Arg	Leu	Glu	Leu	Leu	Ile	Asp	Lys
1				5					10					15	
Thr	Glu	Asn	Leu	Val	Asp	Ser	Ser	Val	Thr	Phe	Lys	Thr	Thr	Ser	Arg
			20					25					30		
Asn	Leu	Ala	Arg	Ala	Met	Cys	Met								
		35					40								

FO3230"43024550

<400> 63
Glu Arg Asp Gln Lys Leu Ser Glu Leu Asp Asp Arg Ala Asp Ala Leu
1 5 10 15
Gln Ala Gly Ala Ser Val Phe Glu Ser Ser Ala Ala Lys Leu Lys Arg
20 25 30

<400> 64
Glu Arg Asp Gln Lys Leu Ser Glu Leu Asp Asp Arg Ala Asp Ala Leu
1 5 10 15
Gln Ala Gly Ala Ser Gln Phe Glu Thr Ser Ala Ala Lys Leu Lys Arg
20 25 30

<400> 65
Asp Lys Val Leu Glu Arg Asp Gln Lys Leu Ser Glu Leu Asp Asp Arg
1 5 10 15
Ala Asp Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu Ser Ser Ala Ala
20 25 30
Lys Leu Lys Arg Lys Tyr Trp Trp
35 40

```

<400> 66
Asp Lys Val Leu Asp Arg Asp Gly Ala Leu Ser Val Leu Asp Asp Arg
 1             5             10             15
Ala Asp Ala Leu Gln Gln Gly Ala Ser Gln Phe Glu Thr Asn Ala Gly
                20             25             30
Lys Leu Lys Arg Lys Tyr Trp Trp
      35             40

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<400> 67

<210> 68

<212> PRT

<400> 68

<210> 69

<212> PRT

<400> 69

<210> 70

<212> PRT

<400> 70

Glu Lys Val Leu Glu Arg Asp Gln Lys Leu Ser Glu Leu Gly Glu Arg
1 5 10 15
Ala Asp Gln Leu Glu Gly Gly Ala Ser Gln Ser Glu Gln Gln Ala Gly
20 25 30
Lys Leu Lys Arg Lys Gln Trp Trp

35

40

<210> 71
<211> 40
<212> PRT
<213> *Drosophila* sp.

<400> 71
Glu Lys Val Leu Glu Arg Asp Ser Lys Leu Ser Glu Leu Asp Asp Arg
1 5 10 15
Ala Asp Ala Leu Gln Gln Gly Ala Ser Gln Phe Glu Gln Gln Ala Gly
20 25 30
Lys Leu Lys Arg Lys Phe Trp Leu
35 40

<210> 72
<211> 39
<212> PRT
<213> *Hirudinida* sp.

<400> 72
Asp Lys Val Leu Glu Lys Asp Gln Lys Leu Ala Glu Leu Asp Arg Ala
1 5 10 15
Asp Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu Ala Ser Ala Gly Lys
20 25 30
Leu Lys Arg Lys Phe Trp Trp
35

<210> 73
<211> 18
<212> PRT
<213> *Homo sapiens*

<400> 73
Glu Arg Ala Val Ser Asp Thr Lys Lys Ala Val Lys Tyr Gln Ser Lys
1 5 10 15
Ala Arg

<210> 74
<211> 18
<212> PRT
<213> *Bos taurus*

<400> 74
Glu Arg Ala Val Ser Asp Thr Lys Lys Ala Val Lys Tyr Gln Ser Lys
1 5 10 15
Ala Arg

TC22B0"42024560

<210> 75
<211> 18
<212> PRT
<213> Rattus sp.

<400> 75
Glu His Ala Lys Glu Glu Thr Lys Lys Ala Ile Lys Tyr Gln Ser Lys
1 5 10 15
Ala Arg

<210> 76
<211> 18
<212> PRT
<213> Rattus sp.

<400> 76
Glu Lys Ala Arg Asp Glu Thr Arg Lys Ala Met Lys Tyr Gln Gly Gly
1 5 10 15
Ala Arg

<210> 77
<211> 18
<212> PRT
<213> Rattus sp.

<400> 77
Glu Arg Gly Gln Glu His Val Lys Ile Ala Leu Glu Asn Gln Lys Lys
1 5 10 15
Ala Arg

<210> 78
<211> 18
<212> PRT
<213> Gallus gallus

<400> 78
Val Pro Glu Val Phe Val Thr Lys Ser Ala Val Met Tyr Gln Cys Lys
1 5 10 15
Ser Arg

<210> 79
<211> 18
<212> PRT

FO3230"402450

<213> Strongylocentrotus purpuratus

<400> 79

Val Arg Arg Gln Asn Asp Thr Lys Lys Ala Val Lys Tyr Gln Ser Lys
1 5 10 15
Ala Arg

<210> 80

<211> 18

<212> PRT

<213> Aplysia sp.

<400> 80

Glu Thr Ala Lys Met Asp Thr Lys Lys Ala Val Lys Tyr Gln Ser Lys
1 5 10 15
Ala Arg

<210> 81

<211> 18

<212> PRT

<213> Teuthoida sp.

<400> 81

Glu Thr Ala Lys Val Asp Thr Lys Lys Ala Val Lys Tyr Gln Ser Lys
1 5 10 15
Ala Arg

<210> 82

<211> 18

<212> PRT

<213> Drosophila sp.

<400> 82

Gln Thr Ala Thr Gln Asp Thr Lys Lys Ala Leu Lys Tyr Gln Ser Lys
1 5 10 15
Ala Arg

<210> 83

<211> 18

<212> PRT

<213> Hirudinida sp.

<400> 83

Glu Thr Ala Ala Ala Asp Thr Lys Lys Ala Met Lys Tyr Gln Ser Ala
1 5 10 15

TEUTHOIDA TEUTHOIDA

Ala Arg

<210> 84
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic construct

<400> 84
Gly Gly Gly Gly Ser
1 5

<210> 85
<211> 19
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic construct

<221> MOD_RES
<222> 1
<223> Xaa=fluorescein-modified lysine

<221> MOD_RES
<222> 20
<223> Xaa=tetramethylrhodamine-modified lysine

<221> AMIDATION
<222> (0)...(0)
<223> at the C-terminal

<400> 85
Xaa Asp Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys
1 5 10 15
Met Leu Xaa

<210> 86
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic construct

<221> MOD_RES

TO3230"4202450

<222> 1

<223> Xaa=fluorescein-modified lysine

<400> 86

Xaa Asp Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln
1 5 10

<210> 87

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic construct

<221> MOD_RES

<222> 7

<223> Xaa=tetramethylrhodamine-modified lysine

<221> AMIDATION

<222> (0)...(0)

<223> at the C-terminal

<400> 87

Arg Ala Thr Lys Met Leu Xaa
1 5

<210> 88

<211> 23

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic peptide

<221> MOD_RES

<222> 1

<223> Xaa=fluorescein-modified lysine

<221> MOD_RES

<222> 23

<223> Xaa=tetramethylrhodamine-modified lysine

<221> AMIDATION

<222> (0)...(0)

<223> at the C-terminal

<400> 88

Xaa Asp Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr
1 5 10 15
Lys Met Leu Gly Ser Gly Xaa

T03230"4202450

```
<210> 89
<211> 21
<212> PRT
<213> Artificial Sequence
```

```
<221> MOD_RES
<222> 1
<223> Xaa=fluorescein-modified lysine
```

```
<221> AMIDATION
<222> (0)...(0)
<223> at the C-terminal
```

```
<210> 90
<211> 24
<212> PRT
<213> Artificial Sequence
```

```
<221> MOD_RES
<222> 1
<223> Xaa=fluorescein-modified lysine
```

```
<221> AMIDATION
<222> (0)...(0)
<223> at the C-terminal
```

<400> 90
Xaa Ala Asp Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala
1 5 10 15

Thr Lys Met Leu Gly Ser Gly Xaa
20

<210> 91
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic peptide

<221> MOD_RES
<222> 1
<223> Xaa=fluorescein-modified lysine

<221> MOD_RES
<222> 16
<223> Xaa=tetramethylrhodamine-modified lysine

<221> AMIDATION
<222> (0)...(0)
<223> at the C-terminal

<400> 91
Xaa Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys Met Leu Xaa
1 5 10 15

<210> 92
<211> 19
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic peptide

<221> MOD_RES
<222> 1
<223> Xaa=fluorescein-modified lysine

<221> MOD_RES
<222> 19
<223> Xaa=tetramethylrhodamine-modified lysine

<221> AMIDATION
<222> (0)...(0)
<223> at the C-terminal

<400> 92
Xaa Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys Met Leu Gly
1 5 10 15
Ser Gly Xaa

TO3230"42024550

```
<210> 93
<211> 22
<212> PRT
<213> Artificial Sequence
```

<220>
<223> synthetic peptide

```
<221> MOD_RES
<222> 1
<223> Xaa=fluorescein-modified lysine
```

```
<221> MOD_RES
<222> 22
<223> Xaa=tetramethylrhodamine-modified lysine
```

```
<221> AMIDATION
<222> (0)...(0)
<223> at the C-terminal
```

```
<400> 93
Xaa Met Glu Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys
 1             5             10             15
Met Leu Gly Ser Gly Xaa
      20
```

```
<210> 94
<211> 16
<212> PRT
<213> Artificial Sequence
```

<220>
<223> synthetic peptide

```
<221> MOD_RES
<222> 1
<223> Xaa-DABCYL modified lysine
```

```
<221> MOD_RES
<222> 16
<223> Xaa=EDANS modified glutamate
```

```
<221> AMIDATION
<222> (0)...(0)
<223> at the C-terminal
```

<400> 94
Xaa Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys Met Leu Xaa

1 5 10 15

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35 40 45
Arg Val Asn Val Asp Lys Val Leu Glu Arg Asp Gln Lys Leu Ser Glu
50 55 60
Leu Asp Asp Arg Ala Asp Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu
65 70 75 80
Ser Ser Ala Ala Lys Leu Lys Arg Lys Tyr Trp Trp Lys Asn Cys Lys
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Met Met Ile Met Leu Gly Ala Ile Cys Ala Ile Ile Val Val Val Ile
100 105 110
Val Ile Tyr Phe Phe Thr
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